PROVISIONAL SUNSPOT RELATIVE NUMBERS, FEBRUARY 1937

[Dependent alone on observations at Zurich and its station at Arosa]

[Furnished through the courtesy of Prof. W. Brunner, Eidgen. Sternwarte, Zurich, Switzerland]

February 1937	Relative numbers	February 1937	Relative numbers	February 1937	Relative numbers
1	*a* 211	11	*a* ---	21	*a* 130
2	224	12	*Macd* 77	22	*add* 167
3	*a* 181	13	---	23	*a* 155
4	*Ec* 152	14	89	24	*ad* 164
5	*a* 146	15	79	25	*aa* 164
6	*Wc* ---	16	*d* 101	26	*Eac* 167
7	98	17	92	27	149
8	*Ec* 90	18	*ad* 88	28	*Wac* ---
9	*Ec* 76	19	*d* 97		
10	---	20	*d* 100		

Mean, 23 days=130.3.

a=Passage of an average-sized group through the central meridian.
b=Passage of a large group or spot through the central meridian.
c=New formation of a group developing into a middle sized or large center of activity. E: on the eastern part of the sun's disk, W: on the western part, M: in the central circle zone.
d=Entrance of a large or average-sized center of activity on the east limb.

AEROLOGICAL OBSERVATIONS

[Aerological Division, D. M. LITTLE, in charge]

By L. P. HARRISON

Mean free-air data based on airplane weather observations during the month of February 1937 are given in tables 1–3 hereunder. A description of the methods by which the various monthly means and normals therein are computed may be found in this section of the MONTHLY WEATHER REVIEW for January 1937.

It will be noted that many of the "normals" are based on only 3 years of observations. Conclusions based on departures from such short-period "normals" must be used with caution.

The mean surface temperatures for February (see chart 1) were generally above normal over the Great Lakes and northeast sections of the country as well as in Texas, Oklahoma, and eastern New Mexico and Arizona; also in southern Florida and a small area in South Dakota and Wyoming. The mean surface temperatures in the remainder of the country were generally below normal. The largest positive departures at the surface were principally concentrated in the immediate vicinity of the Great Lakes and east thereof, with values ranging from less than +1° C. to about +3.7° C., the latter prevailing on the northern New England coast. The positive departures elsewhere averaged nearly 1° C. The largest negative departures at the surface were confined to portions of the Western Plateau Region, with values ranging from −1° C. to −4° C. Elsewhere the negative departures were close to −1° C., except in the north-central part of the country where −2° C. was near the lower limit.

The mean free-air temperatures for the month up to 5 km above sea level (see table 1) generally did not depart very much from normal. Departures of this element from normal were mostly positive by slight amounts over the eastern part of the country, with maxima at Lakehurst, N. J., and Wright Field (Dayton), Ohio (+1.9° to +2.9° C., and 1.4° to 2.4° C., respectively, at all levels up to 5 km). The appreciable negative departures found at the surface in the north-central part of the country apparently were not merely confined to the surface, as shown by the departures of −2° to −2.7° C. from 1 to 5 km at Omaha, Nebr. Elsewhere the deviations from normal temperature were not notable except perhaps at Kelly Field (San Antonio), Tex., in the upper strata (+1.1° to 2.3° C. from 3 to 5 km).

The mean free-air relative humidities and specific humidities are given in table 2. In the eastern part of the country, except perhaps in the extreme southeast, the mean relative humidities were generally below normal by slight to moderate amounts (−2 to −12 percent) at almost all elevations up to 5 km, with most marked negative departures at Washington, D. C. where values from −10 to −12 percent prevailed in the stratum 1.5 to 3 km. In the north-central part of the country, Omaha, Nebr., showed slight positive departures (+1 to +5 percent) in humidity at all levels up to 5 km, hence of opposite sign to the departures of temperature from normal noted previously. In the northwest slight to moderate excesses over normal humidities generally prevailed. By comparison of the relative humidities for Salt Lake City, Utah, with those for surrounding stations, it may be inferred that they were at least moderately in excess of the normal at practically all elevations up to 5 km. On the southern California coast the humidities near the surface were moderately greater than normal, but approximately normal at greater elevations as shown by the results for San Diego, Calif. Elsewhere the departures of relative humidity did not appear significant.

Table 3 shows the monthly mean free-air barometric pressures and equivalent potential temperatures. The place of lowest average pressure during February at elevations up to 5 km, with the exception of the very lowest stratum near the ground, was located in the vicinity of Sault Ste. Marie, Mich., hence somewhat to the east of its position in January when it was centered over Fargo, N. Dak. However, it may be noted that the gradient between these two stations was relatively small in February (difference 3 to 1 mb). The (statistical) center of highest average pressure occurred over the region near Miami, Fla.